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Title: ENDF/B-V Sm-149 Cross Sections for MCNP

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# Los Alamos

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Los Alamos, New Mexico 87545

## memorandum

TO: Distribution  
FROM: Bob Little *RCL*  
SYMBOL: X-6:RCL-85-85  
SUBJECT: ENDF/B-V SM-149 CROSS SECTIONS FOR MCNP

DATE: February 13, 1985

MAIL STOP/TELEPHONE: B226/7-4886

At the request of Lee Carter (HEDL), we have processed the ENDF/B-V evaluation of  $^{149}\text{Sm}$  into ACE format for MCNP.

Sm-149 is one of seven isotopic components of natural samarium, with an abundance of 13.9%. The low-energy capture cross section of  $^{149}\text{Sm}$  is the dominant neutronic property of natural samarium. The (n,gamma) cross section is shown in Fig. 1. The thermal capture cross section of  $^{149}\text{Sm}$  is approximately 41,000 barns.

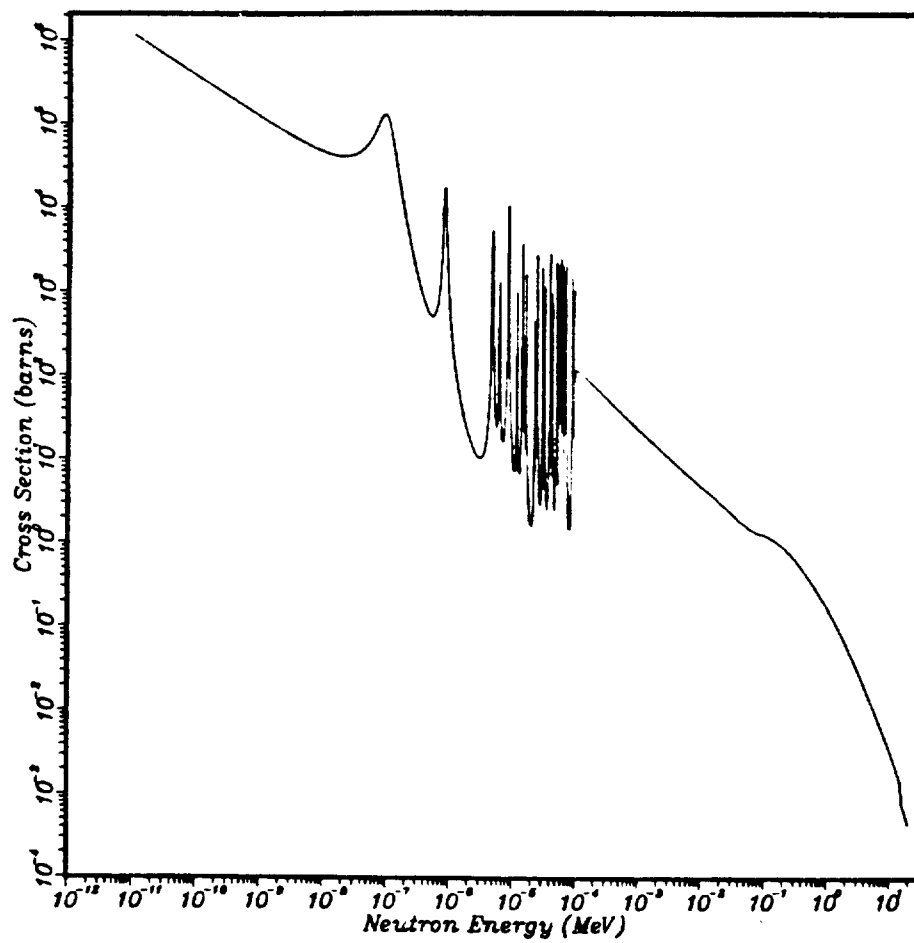
The ENDF/B-V evaluation of  $^{149}\text{Sm}$  (MAT=1319 on Tape 510) was processed into ACE format for MCNP. The ACER module of NJOY was used with a previously-processed PENDF tape as the starting point. The ENDF/B-V data have been processed at 300°K and contain no photon-production information.

To use these data in MCNP, one must fetch a special cross-section directory from CFS: /X6XS/LTSS/XSDIRXAL or /X6XS/CTSS/XSDIRXAL. Then switch XSDIRXAL to XSDIR or set XSDIR=XSDIRXAL on the MCNP execution line. The ZAID is 62149.50C.

:an

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02/13/85

ZAID = 62149.50C

SM-149

From File SM149XS3

MT=102

N,GAMMA

Fig. 1